Male circumcision and the risk of HIV infection in men who have sex with men
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The suggestion by two decades of observational epidemiological data1,2 of a partially protective effect of male circumcision on HIV acquisition in heterosexual men has now been confirmed in three randomized controlled trials conducted in sub-Saharan Africa.3–5 Together these trials show that male circumcision reduces the incidence of HIV infection in sexually active, heterosexual men by at least half. However, we are not aware of a published systematic synthesis of the available evidence on the effect of male circumcision on the risk of HIV infection in men who have sex with men. We thus undertook a systematic review to describe the association between male circumcision and HIV acquisition in men who have sex with men.

We systematically searched Medline and Embase for studies published between 1980 and December 2006 which assessed the effect of male circumcision on HIV infection among men who have sex with men. We combined terms related to men who have sex with men (e.g. men who have sex with men, gay, homosexual), male circumcision (e.g. circumcision, foreskin removal) and HIV infection (e.g. HIV, AIDS) and supplemented the search with references from selected articles, abstracts from the International AIDS Conferences up to 2006 and correspondence with other researchers. Two authors (SLF and CSW) independently assessed the identified studies and selected those which enrolled men who have sex with men (e.g. men who have sex with men, gay, homosexual), male circumcision (e.g. circumcision, foreskin removal) and HIV infection (e.g. HIV, AIDS) and supplemented the search with references from selected articles, abstracts from the International AIDS Conferences up to 2006 and correspondence with other researchers. Two authors (SLF and CSW) independently assessed the identified studies and selected those which enrolled men who have sex with men (e.g. men who have sex with men, gay, homosexual), male circumcision (e.g. circumcision, foreskin removal) and HIV infection (e.g. HIV, AIDS) and supplemented the search with references from selected articles, abstracts from the International AIDS Conferences up to 2006 and correspondence with other researchers. Two authors (SLF and CSW) independently assessed the identified studies and selected those which enrolled men who have sex with men (e.g. men who have sex with men, gay, homosexual), male circumcision (e.g. circumcision, foreskin removal) and HIV infection (e.g. HIV, AIDS) and supplemented the search with references from selected articles, abstracts from the International AIDS Conferences up to 2006 and correspondence with other researchers. Two authors (SLF and CSW) independently assessed the identified studies and selected those which enrolled men who have sex with men (e.g. men who have sex with men, gay, homosexual), male circumcision (e.g. circumcision, foreskin removal) and HIV infection (e.g. HIV, AIDS) and supplemented the search with references from selected articles, abstracts from the International AIDS Conferences up to 2006 and correspondence with other researchers.

We resolved disagreement between the authors on study eligibility and extracted data by consensus. We used The Cochrane Collaboration’s Review Manager to analyse the data.

We summarize the search and selection of studies in Figure 1, the characteristics of included studies in Table 1 and the effect estimates (odds ratios, OR) with 95% confidence intervals (CI) in Figure 2. Of 79 non-duplicate studies identified, 14 were retrieved for detailed evaluation. The list of studies is available from the authors, on request. Two studies, one cohort study and one cross-sectional,7 met our inclusion criteria. A third study that examined the relationship between circumcision status in men who have sex with men, depending on whether they practised unprotected insertive or receptive anal intercourse, was excluded because at baseline all the participants were HIV infected.8 The cohort study, a prospective study of 3257 HIV-negative men in six cities in the United States,6 found the incidence of HIV to be lower in circumcised men compared to their uncircumcised counterparts (OR 0.52, 95% CI 0.29–0.93, P = 0.03). The cross-sectional study of 499 men in Seattle7 found a lower HIV prevalence among circumcised than in uncircumcised men (OR 0.46, 95% CI 0.26–0.81, P = 0.009). In each study,
circumcision status was assessed by self-report. There was no distinction in either study between the frequencies of insertive vs receptive anal sex by circumcision status. Despite the differences in study methodology, the findings were consistent between the two studies (pooled OR 0.49, 95% CI 0.32–0.73, \( P = 0.0006 \); heterogeneity \( P = 0.79, I^2 = 0 \)).

The observational nature of the studies included in this systematic review raises the possibility that the observed effect might be due to confounding factors not measured (and therefore not controlled for) in the studies, rather than being the result of a biological effect of male circumcision. In addition, ascertainment bias can be a problem in any study of male circumcision based on self-report because in some settings self-report has been found to have poor sensitivity and specificity for ascertaining real circumcision status.9

Studies of men who have sex with men have identified unprotected receptive anal intercourse as a practice with the greatest risk of HIV infection,10 suggesting that the circumcision status of the insertive partner may be an important variable influencing risk for receptive partners. Thus, there is need for randomized controlled trials to find out if circumcised men who have sex with men are both at lower risk of HIV acquisition themselves and, if infected, less likely to transmit HIV than uncircumcised men who have sex with men. However, it should be clearly stated that the benefits of male circumcision could be undermined by increases in unsafe sexual behaviour (such as non-use of condoms and multiple concurrent sex partners) sparked by decreases in perceived risk.11

References